

## **ABSTRACT OF THE DISCLOSURE**

A hollow core multi-mode interference (MMI) device is described that comprises a multi-mode waveguide (10, 14) optically coupled to at least two fundamental mode waveguides (8, 12, 16). The device is characterised in that it comprises a means for varying the internal cross-sectional dimensions of a portion of one or more of said at least two fundamental mode waveguides. In particular, the side wall of a fundamental mode waveguide having a substantially square cross-section can be moved using micro-electro mechanical systems (MEMS). Various optical routing devices incorporating such MMI devices are described.